CLAIMS

What is claimed is:

1. A bias circuit to bias a Doherty amplifier having a carrier amplifier and peaking amplifier, the bias circuit comprising:

5   a current mirror circuit comprising an output electronically connected to the carrier amplifier;

a scaling/level shifting circuit comprising an input electronically connected to the current mirror circuit; and

a voltage buffer having an input electrically connected to the scaling/level

10   shifting circuit and an output electrically connected to the peaking amplifier.

2. The bias circuit of claim 1, wherein the current mirror comprises a reference device that is electrically connected to the carrier amplifier to form a control current mirror.

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3. The bias circuit of claim 1, wherein the current mirror comprises a reference device and a voltage follower having a low output impedance electrically connected to an input of the reference device.

20   4. The bias circuit of claim 3, wherein the reference device is electrically connected to the carrier amplifier to form a control current mirror.

5. The bias circuit of claim 1, wherein the current mirror comprises a voltage follower having a low output impedance electrically connected to the input of the scaling/level shifting circuit.

5   6. The bias circuit of claim 5, wherein the current mirror further comprises a reference device having an input electrically connected to the low output impedance of the voltage follower.

7. The bias circuit of claim 6, wherein the reference device is electrically

10   connected to the carrier amplifier to form a control current mirror.

8. The bias circuit of claim 1, wherein the scaling/level shifting circuit further comprises at least two resistors disposed as a voltage divider.

15   9. The bias circuit of claim 1, wherein the scaling/level shifting circuit further comprises an amplifier having a voltage offset source as an input.

10. A Doherty power amplifier system comprising:

a Doherty amplifier having a carrier amplifier and peaking amplifier; and

20   a bias circuit comprising

a current mirror circuit comprising an output electronically connected to the carrier amplifier,

a scaling/level shifting circuit comprising an input electronically connected to the current mirror circuit, and

a voltage buffer having an input electrically connected to the scaling/level shifting circuit and an output electrically connected to the peaking amplifier.

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11. The system of claim 10, wherein the current mirror comprises a reference device that is electrically connected to the carrier amplifier to form a control current mirror.

10   12. The system of claim 10, wherein the current mirror comprises a reference device and a voltage follower having a low output impedance electrically connected to an input of the reference device.

13. The system of claim 12, wherein the reference device is electrically connected to the carrier amplifier to form a control current mirror.

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14. The system of claim 10, wherein the current mirror comprises a voltage follower having a low output impedance electrically connected to the input of the scaling/level shifting circuit.

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15. The system of claim 14, wherein the current mirror further comprises a reference device having an input electrically connected to the low output impedance of the voltage follower.

5   16. The system of claim 15, wherein the reference device is electrically connected to the carrier amplifier to form a control current mirror.

17. The system of claim 10, wherein the scaling/level shifting circuit further comprises at least two resistors disposed as a voltage divider.

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18. The system of claim 10, wherein the scaling/level shifting circuit further comprises an amplifier having a voltage offset source as an input.

19. A process to bias a Doherty amplifier having a carrier amplifier and

15   peaking amplifier, the process comprising:

maintaining a constant current in a current mirror as a function of a base voltage at a first node;

passing the constant current from a current mirror circuit to the carrier amplifier;

20   at least one of scaling and shifting the base voltage to produce a second voltage at a second node by employing a scaling/level shifting circuit comprising an input electronically connected to the current mirror circuit; and

passing the second voltage through a voltage buffer to the peaking amplifier.

20. The process of claim 19, wherein passing the constant current from a

current mirror circuit to the carrier amplifier includes mirroring the constant current

5   through a control current mirror, wherein the control current mirror comprises a

reference device within the current mirror that is electrically connected to the carrier

amplifier.

21. A circuit, comprising:

10   a linear amplifier bias circuit comprising first means for adjusting for process

variations and environmental variations; and

a non-linear amplifier bias circuit comprising second means for adjusting for

process variations and environmental variations, wherein the second means for

adjusting for process variations and environmental variations is a function of the first

15   means for adjusting for process variations and environmental variations.

22. The circuit of claim 21, further comprising

a linear amplifier coupled to the linear amplifier bias circuit, wherein

the linear amplifier bias circuit comprises a reference device that is disposed in

20   relation to the linear amplifier so as to comprise the first means for adjusting for

process variations and environmental variations.

23. The circuit of claim 21, wherein the first means for adjusting for process variations and environmental variations comprises a current mirror.

24. The circuit of claim 21, wherein the first means for adjusting for process variations and environmental variations comprises means for producing a first voltage and the second means for adjusting for process variations and environmental variations includes means for producing a second voltage that is a function of the first voltage.

25. The circuit of claim 21, wherein the linear amplifier bias circuit comprises a voltage follower coupled to a reference device, the circuit further comprising:

a carrier amplifier coupled to the voltage follower.

26. The circuit of claim 25, wherein the non-linear amplifier bias circuit comprises a voltage buffer coupled to a scale/level shift circuit, the circuit further comprising:

a non-linear amplifier coupled to the voltage buffer, wherein the scale/level shift circuit is coupled to the voltage follower.

27. The circuit of claim 26, wherein the linear amplifier is configured to function as a carrier amplifier and the non-linear amplifier is configured to function as a peaking amplifier in a Doherty amplifier.

28. The circuit of claim 27, wherein the linear amplifier bias circuit is a class AB amplifier bias circuit and wherein the non-linear amplifier bias circuit is a class C amplifier bias circuit.